

Slide 7 in Lect 11

Let $A = \{ \text{male single, skilled, own, } < 100 \}$

if $P(\text{good} | A) > P(\text{bad} | A)$ then $A \rightarrow \text{good}$ ← Given

if $P(\text{good} | A) < P(\text{bad} | A)$ then $A \rightarrow \text{bad}$

$$P(\text{good} | A) = \frac{P(A | \text{good}) P(\text{good})}{P(A)}, \quad P(\text{bad} | A) = \frac{P(A | \text{bad}) P(\text{bad})}{P(A)}$$

يمكن تقارنين البسيط لأن المقام ثابت في الحالتين

$$P(A | \text{good}) = P(\text{male single} | \text{good}) * P(\text{skilled} | \text{good}) * P(\text{own} | \text{good}) * P(< 100 | \text{good})$$

$$= \frac{14}{19} * \frac{12}{19} * \frac{13}{19} * \frac{10}{19} = \frac{21840}{130321} = 0.167$$

$$P(\text{good}) = \frac{19}{27} = 0.7037$$

$$P(A | \text{good}) * P(\text{good}) = 0.1175$$

$$P(A | \text{bad}) = P(\text{male single} | \text{bad}) * P(\text{skilled} | \text{bad}) * P(\text{own} | \text{bad}) * P(< 100 | \text{bad})$$
$$= \frac{2}{8} * \frac{4}{8} * \frac{4}{8} * \frac{7}{8} = \frac{329}{4096} = 0.0803$$

$$P(\text{Bad}) = \frac{8}{27} = 0.296$$

$$P(A | \text{bad}) * P(\text{Bad}) = 0.0238$$

$$\therefore P(A | \text{good}) * P(\text{good}) > P(A | \text{bad}) * P(\text{Bad})$$

$$\text{then } P(\text{good} | A) > P(\text{bad} | A)$$

$$\text{then } A \rightarrow \text{good} \neq$$